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Leenes, R.E.; Svensson, J.

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Local eGovernment in the Netherlands

Ronald E. Leenes and Jörgen S. Svensson
Tilburg University / University of Twente
r.e.leenes@uvt.nl / j.s.svensson@utwente.nl

1. Introduction

The Netherlands is one of the smaller countries in Europe with just over 16 million inhabitants. It is a fairly prosperous and industrious country with a well educated population and a relatively strong position in world trade, finance and electronics. The banking system is highly developed. With almost everyone over 18 years of age having a bank account, there is a dense network of automated teller machines and the use of Internet banking is spreading rapidly. Finally, Internet penetration is relatively high - over 60 per cent - and still growing, with an increasing proportion of these connections being broadband (about 40 per cent in 2003).

As such factors are supposed to offer a good breeding ground for eGovernment, it should come as no surprise, that the Netherlands was among the first countries to seriously take up the challenge to modernize government and to introduce Electronic Service Delivery (ESD), both in national plans and on the local level.

2. Context of municipal eGovernment

2.1. Local government in the Netherlands

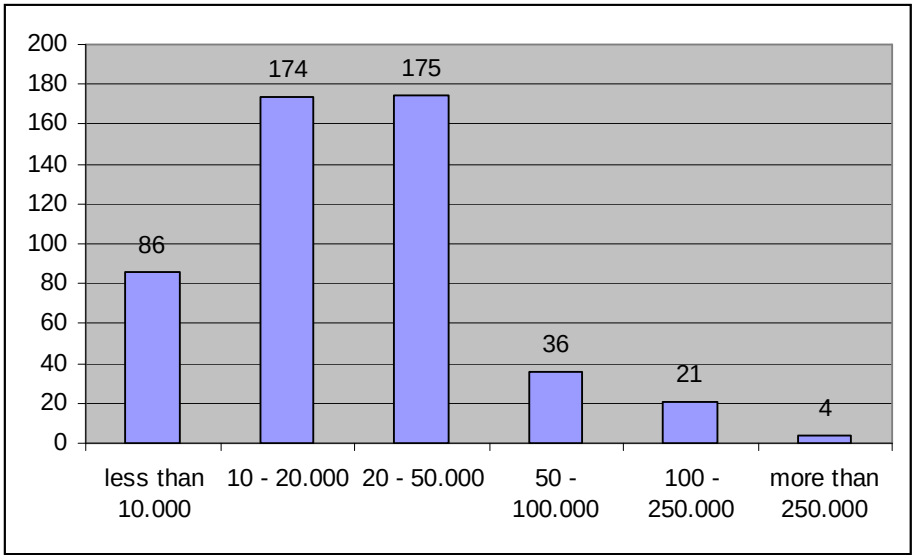
The Netherlands is a *decentralized, unitary state* (de Jong and Schuszler, 1999). This expression refers to the fact that next to the Dutch national government, the Dutch constitution recognises several other governmental layers, which have their own democratic underpinnings and their own responsibilities, and thus independent authority in some fields. Most important in this respect is the position of the Dutch municipalities, which have their own constitutional responsibilities in policy development as well as in policy execution.

The present number of municipalities is just below 500, with an average population of slightly over 33,000 inhabitants. However, with about 30 per cent of the total population concentrated in just 25 cities, Amsterdam and Rotterdam being the largest cities by far, most municipalities are in fact much smaller (see figure 3).

Moreover, when considering the population size of Dutch municipalities, it should be noted that many, especially rural municipalities are a result of administrative mergers between smaller communities. Tytsjerksteradiel, for instance, has 31,000 inhabitants but spans an area of 161.41 square kilometres, containing 16 villages.

FIGURE 1 NEAR HERE

Figure 1. Numbers of municipalities in different size categories (N=496)



Source: http://www.cbs.nl

2.2. Municipalities and service delivery

Where it comes to the delivery of public services, municipal autonomy is especially important. As municipalities are not only responsible for truly local services – services based on local policy – but also for the administration of many national services and for products of joint governance, about 70 per cent of all public services are delivered at the municipal level (Lips, 1998).

This means that for many of such services, Dutch municipalities enjoy a serious policy responsibility and also a serious administrative burden. Where a high degree of autonomy implies a risk of policy fragmentation (and of re-inventing of wheels), budget, personnel and other considerations imply a certain need to work together.

Thus, in the general interest, the Ministry of the Interior and Kingdom Relations (BZK) and the Dutch Association of Local Authorities (VNG) are considered to have

a responsibility in supporting local authorities in their activities and in furthering inter-municipal co-operation and alignment, while at the same time always acknowledging the constitutional municipal autonomy.

It is from this perspective that National policies concerning eGovernment and electronic service delivery take shape.

2.3. National e-government policy

The history of public sector information policy in the Netherlands is roughly divided into three eras or generations in which its policy focus has developed as an effect of advances in the technology, computing experiences and policy ambitions.

The first era, that of *computer policy*, started in the beginning of the 1950s, when the first computers entered the market and the Netherlands saw its first advisory committees in this field (Donk and Meijer, 1994). In this dawn of IT policy, the Netherlands experienced about twenty-five years in which 'the computer' was mainly regarded as an exceptional and extremely expensive instrument for computation and transaction processing. Computers were to be used on a 'stand alone' basis, in very specific government organizations, with specific, isolated tasks at the national level, such as the Tax office, the Central Statistical Bureau, the Royal Dutch Meteorological Institute and the (Royal) PTT.

This first era was followed by a second period of about fifteen years, until the beginning of the nineties, that showed a rapid increase in the diffusion of computers

in government, and along with it, the emergence of *information policy*. The Netherlands saw a somewhat broader focus on the controlled development of information technology within government, when it was recognized that:

1. Information technology could be applied to enhance the *internal functioning* of government as a whole and,
2. This kind of internal application of information technology required some *planning and coordination* between various government bodies and different levels of government.

The focus thus shifted to questions of electronic data exchange between government organizations and to the desirability in this context of an information infrastructure based on agreements about basic registrations (e.g. population, real estate, cars) and data communication standards. As a result of this, over the years, several basic registries were developed, such as the Municipal Public Records Database (GBA-Gemeentelijke Basisadministratie).

Currently, The Netherlands is in the midst of a third policy generation, namely that of *Electronic Service Delivery (ESD).* The ESD-policy generation started in the early 1990s with the concept of Public Service Centres and really gained momentum as a result of the Internet revolution. Its focus is the application of information and communication technology beyond the inner limits of government, directly addressing the interaction between government and citizens. ICT is regarded as instrumental in democratic citizen participation, as well as modern public service provision (BZK, 1995). For this purpose several ESD-programmes have been developed, in recent years.

2.4. ESD programmes

In general, ESD programmes in the Netherlands have a strong focus on municipalities. On the one hand, this focus simply follows from the policy ambitions. As said before, around 70 per cent percent of all public services in the Netherlands are developed and/or delivered on the municipal level. On the other hand, this focus is necessary because developing ESD on the level of the municipalities poses a most serious challenge, for three reasons:

1. The number of services on this level is immense and so is their variety;
2. In general, municipalities, especially smaller ones, have very limited means.
3. Because of the constitutional autonomy of the municipalities, national ESD programmes are totally dependent on the voluntary co-operation of the local level.

So, during the last decade, the Dutch national ambition of modern ESD has been furthered through several national programmes, which have targeted the municipal level, most important of which are:

- The Public Counter Project (OL2000) (BZK, 1995);
- The Action Programme Electronic Government (ELO) (BZK, 1998);
- A programme of so called 'Super pilots', which started in 2001 (BZK, 2000).

As these three programmes make up an important part of the institutional context of local ESD development, we will discuss them briefly.

1995: The Public Counter Project: core ideas and organization

The Dutch Public Counter project was announced in 1995, in a government paper with the catchy title 'Back to the Future'. It aimed at the implementation, around the

year 2000, of a nation wide network of One-Stop-Shop Public Counters to 'replace' the existing multitude of counters run by individual government agencies. It especially focused on a qualitative development along three dimensions (BZK, 1995):

- Client orientation: the new counters should no longer offer services based on the logic of the existing bureaucracy, but instead address the actual demands of specific target groups (based on life-events);
- Service integration: services by different government agencies and different branches within agencies, should be provided in a joint-up fashion, reducing the need for citizens to go back and forth through the complex bureaucracy (i.e. a citizen should be able to present his complete case at one single access point to receive all services required);
- ICT application: ICT use would be developed in three stages. As a first step applications for civil servants in the front- and back-offices would be developed, then there would be self service applications for citizens, installed in public places, and as a final aim the project foresaw 'service delivery via the Electronic Highway'.

To give shape to these ideas, an intergovernmental committee was formed, consisting of representatives of key Ministries (Ministry of the Interior and Ministry of Economic Affairs) and of the Association of Local Authorities. A special programme bureau (OL2000 programme bureau) was erected at arms length of the Ministry of the Interior, and was made responsible for creating awareness and support in the municipalities and for providing the necessary preconditions to develop a number of pilot projects.

Fifteen pilot projects were commissioned, grouped around three topics or target groups, 'housing', 'elderly and the disabled' and 'know-your-rights'.

During the six years the programme ran, the OL2000 project bureau published a number of handbooks for local authorities on topics such as developing integrated service delivery, organizational change management, monitoring service delivery and co-operation between public agencies. These handbooks were distributed, free of charge, among the municipalities and other relevant actors in the field.

An important spin-off of the OL2000 programme was 'VIND': which means ‘Find’, and is also a Dutch acronym, for ‘Question based interactive product database’. The idea in OL2000 was that the development and maintenance of a large catalogue of municipal products was beyond the capacities of many individual municipalities and that centralizing this task – on a voluntary basis – would be far more efficient. Thus, an extensive catalogue was developed, containing basic information about 300 municipal products and services (what does the product amount to, what are the requirements, who do I contact, what is the procedure). This catalogue has been organized around life-events and roles of citizens and has been designed to be used either as a stand alone application, or as an integrative part of a municipal website. From the first of January, 2002, the administration and maintenance of the VIND catalogue has been transferred to a joint venture of two publishers of government information and a consultancy firm. Municipalities can subscribe to VIND for a relatively small fee depending on their size: 1600 euro annually for small municipalities and 4500 euro for larger ones (http://www.productencatalogus.nl).

1998: The Action Programme Electronic Government

The Action Programme Electronic Government (BZK, 1998) can be seen as an extension and broadening of the Public Counter Programme. The Action Programme was developed, in the midst of the Internet euphoria, following the Dutch National Action Plan for the Electronic Highway (EZ, 1994). According to the Electronic Government action plan, the Dutch government would actively invest in the application of ICT, not only as a means to improve its own functioning, but also as an example of innovative ICT use for the rest of Dutch society. For this purpose, it focused again on the possibility of improved service delivery, but also on effectiveness (reaching target populations) and efficiency (reduced costs) (BZK, 1998).

Three central themes of this programme were:

- Electronic accessibility of Government especially with regard to public information (parliamentary proceedings and policy papers, legislation and judicial decisions);
- Improvement of online public service delivery: at least 25 per cent of public services should be online by the year 2002, as a result of the continuation of the Public Counter project;
- Improved internal management within central government, again by means of ICT.

In addition to these general themes, a sector approach was developed, focusing on education, public employment services, social security and healthcare.

This combination of themes and sector focus did amount to an impressive ‘action list’ for the years ahead, which contained items such as:

- The development of a central Government portal: http://www.overheid.nl;

- A list of government information to be made available by electronics means by the various ministries;
- The development of a Counter for the new Centres for Work and Income;
- Experimentation with the use of chip cards in healthcare and for general identification purposes;
- Development and streamlining of Basic registries (e.g. for enterprises, pipes and lines, insurances, and real estate);
- The development of digital record keeping and digital archiving of government information.

It was estimated that the initial costs of these activities would amount to between € 9 million and € 13.5 million annually. These costs would be covered by the budget of the National Action Plan for the Electronic Highway for the first five years. The total budget needed to cover all expenses, especially running costs after implementation, was thought to be much higher and was expected to be met by the parties involved in the various projects.

2001: Super pilots

The most recent large step in the endeavour to modernize government on the municipal level was the introduction, in 2001, of the so called *Super Pilots*: a covenant between the minister of Urban Policy and Integration (Rogier van Boxtel) and the municipalities of Enschede, Den Haag, and Eindhoven and Helmond (http://www.superpilots.nl).

The Super Pilot programme, which ends in 2004, aims at the realization of '100 per cent electronic service delivery' in each pilot, through an intensive development process, in a three year period. Each of the three pilots is to develop its own approach.

Knowledge gained is to be shared between them, and also with the other municipalities in the Netherlands through documents and an ESD toolbox.

By taking part is this programme, each super pilot receives a state subsidy of 2.7 million Euro, which is to be matched by an equal investment by the municipality itself.

3. Local eGovernment at a Glance

Nowadays, municipalities in the Netherlands make extensive use of ICT. Most local authorities have taken on information technology in their daily operations, and most municipal staff have access to a personal computer, connected to the municipal network.

As a result of past efforts, all municipalities in the Netherlands also have access to well developed authentic registers, such as the Municipal Public Records Database (GBA). These registers are administered at the local level, but changes are passed onto other relevant public organisations (up to 300). The authentic registers play an important role in many processes, which depend on accurate, reliable information.

In addition, all municipalities (and other public agencies) can make use of the closed, secure, network of the Association of Local Authorities: GEMNET.

Almost all municipalities, Amsterdam and Arnhem being notable exceptions, make use of electronic voting machines in local, provincial, national and European

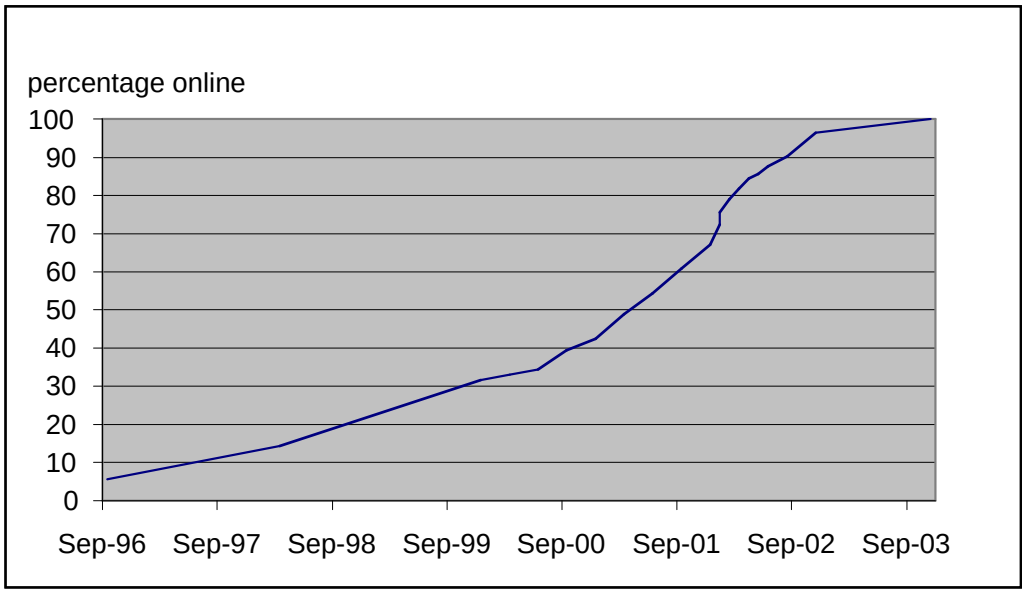
elections.

3.1. Municipal Internet presence

In addition to these Informatization successes from the second, information policy era, most Dutch municipalities have taken up their ESD-policy responsibilities in recent years, most noticeable in the form of municipal websites. Since the late 1990s, there has been an active policy to get all local authorities online by providing tools and limited funding. This has recently resulted in a (nominal) Internet presence of 100 per cent. Since November 2003, all Dutch municipalities have some presence on the Internet in the form of their own, official municipal website (www.municipality_name.nl).

FIGURE 2 NEAR HERE

Figure 2. The diffusion of the municipal web sites in the Netherlands.



Source: http://www.advies.overheid.nl

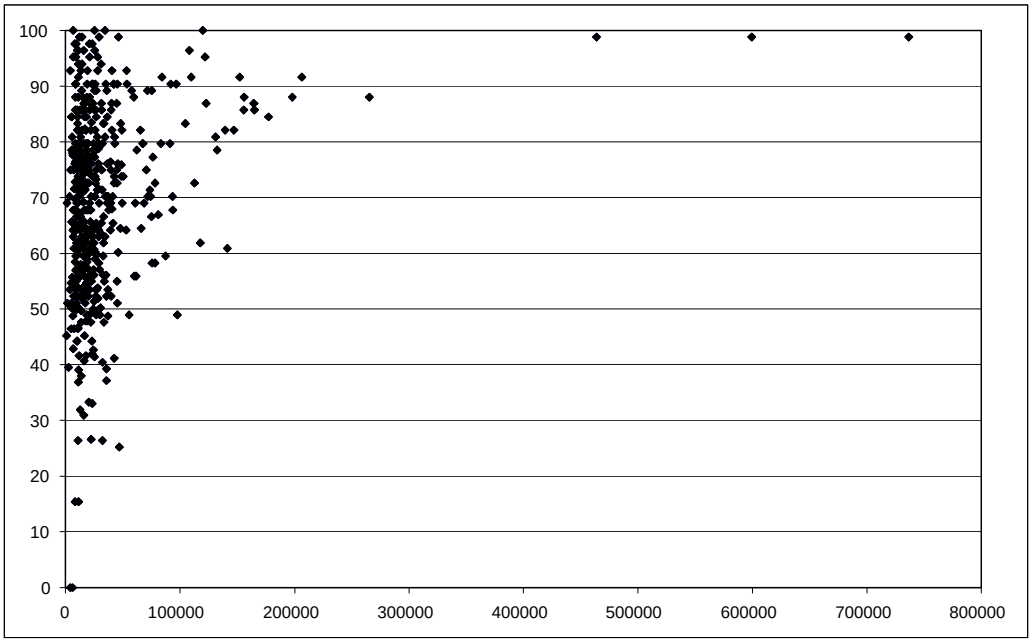
3.2. Municipal ESD sophistication

Of course, concerns for ESD-policy do not end here. The fact that all Dutch municipalities now have official websites should be considered only a first step on a long way. As explained above, ESD-policy ambitions reach much further in terms of service quality, service integration and service efficiency, and in this respect there are three important indicators that there is still a lot to wish for.

First of all, there are several national benchmarks for municipal websites, which show a large variation in website maturity. Two well known benchmarks are the *Webdam* monitor (http://www.webdam.nl) and the *Advies Overheid.nl* monitor (http://www.advies.overheid.nl), which is related to the central government portal http://www.overheid.nl. On the grand scale, these monitors show similar pictures. As depicted in figure three, especially many of the smaller municipalities are lagging behind, and sometimes their websites contain little more than a page with some general information about the town.

FIGURE 3 NEAR HERE

Figure 3. Maturity of local websites related to city size.[i]



Source: http://www.overheid.nl

Second, the fact that municipal websites are not as advanced as they should be, is expressed in National surveys, in which Dutch citizens expressed their experiences and satisfaction. Here, we see that only few municipalities are able to deliver what the public expects and desires (table 1).

TABLE 1 NEAR HERE

Table 1. Citizen satisfaction with municipal web services.

Service Quality	*%*	*Participation Quality*	*%*
Excellent	0	Excellent	0
Good	1	Good	0
Satisfactory	17	Satisfactory	9
Passable	57	Passable	46
Weak	23	Weak	15
None	2	None	31

Source: Bongers *et al.* (2002)

A final indicator that the Dutch municipalities are not doing too well, is the Netherlands' position in several international Benchmarks. As the Netherlands has always been rather progressive in implementing ICT innovations at the national level (e.g. in the field of taxation and in its system for student bursaries), it has always been among the world leaders in ESD development. However, as many of these national services have now reached a high level of maturity, further advancement depends on the progression of the municipalities, and in this respect, the Netherlands does not seem to do well at all. The country has slipped in international benchmarks, in recent years. On the new indicator introduced in the monitor of the European Commission, the amount of fully online services, the Netherlands not only scores very low, but also the progress is also slower than in most other EU countries (CGEY Cap Gemini Ernst & Young, 2004).

So, although the formal national plans in the Netherlands tell us something about national ambition, they offer little on actual activities and results. In order to get a better understanding of what is going on, on the local level, we now turn to a case study of three Dutch municipalities.

4. Case Study on Dutch local eGovernment

In this chapter only a small sample of Dutch municipalities can be discussed in more detail. This first brings on the question which cases to select, after which we will use these cases to fill-in the general framework presented and applied in the other chapters.

4.1. Case selection

The task of selecting only a few municipal cases to sketch local developments in a country such as the Netherlands is, of course, a difficult one. Municipalities vary considerably in many important aspects, such as size and ESD-sophistication and thus a representative overview seems out of the question. Because of this, we have decided to apply another basis for selection in this chapter: namely connectedness to the national programmes. Given the dominance in the Netherlands of several extended national policies, aimed at the realisation on a large number of policy ambitions, it is especially interesting to study municipalities which are expected to follow the logic in these programmes and the intended progress.

For this reason we have decided to investigate two Super Pilot municipalities, which are considered to epitomize the concept of municipal development in the context of national programmes:

1. The city of Enschede, which is not only a current Super Pilot, but which has also been engaged in the original OL2000 programme as a Public Counter project.[ii]
2. The city of Eindhoven, a Super Pilot which at the moment of case selection was considered to offer one of the best municipal websites in the Netherlands.[iii]

Although these Super Pilots are considered exemplary, they are very special in the sense that they are not only Super Pilots with additional funding for ESD development, but also rather large municipalities. Therefore, a third, contrasting, case is used, namely that of the small town of Millingen aan de Rijn. Millingen with just 6,000 inhabitants is not only small, but as a logical consequence has very limited means to develop ESD. However, according to one of the national benchmarks, it has managed to do remarkably well. In this sense it too can be regarded as exemplary, especially when we keep in mind that in the Netherlands there are many municipalities which resemble this town in population size, bureaucratic scale and financial means.

TABLE 2 NEAR HERE

Table 2. Local eGovernment discussed in this country case.

		Benchmark ranking	
Municipality	*Population*	*Webdam*	*Advies.Overheid.nl*
Enschede	153 000	55	8
Eindhoven	206 000	4	33
Millingen aan de Rijn	6 000	27	159

Sources: www.webdam.nl, www.advies.overheid.nl

As a further introduction to these cases, the following information is provided.

Enschede is a city of about 153,000 inhabitants, which makes it the 12th in size in the Netherlands. The city used to have a large textile industry, but in the 1970s, most of the production in this sector transferred to low income countries. As a result, the city

suffered badly from high unemployment. Although it has largely recovered, Enschede's economic performance is still behind as compared to other larger cities in the Netherlands. However, Enschede has both a university (the University of Twente) with approximately 7000 students, and a university of higher education (Saxion university) with some 7500 students.

Eindhoven is situated in the south of the Netherlands in the province of North Brabant. With a population of about 206,000 people, it is the fifth largest Dutch city. For many people inside and outside the Netherlands, Eindhoven is probably best known for Philips, the consumers electronics multinational, and for its football club, PSV. In addition to this, Eindhoven and its surrounding region are a residence to many more smaller and larger high tech institutions, such as the Technical University Eindhoven and the ASML company, which is a world leader in advanced lithography systems for the semiconductor industry.

Millingen aan de Rijn is a small, rural town on the German border and on the south bank of the river Rheine. It has a total population of just under 6,000 inhabitants and an area of about 10 km^2, which partly overlaps the nature park Millingerwaard.

4.2. Points of Departure for developing local eGovernment

As discussed above, local eGovernment in the Netherlands can be traced to projects aimed at modernizing local public administration in the late 1980s and early 1990s and was stimulated strongly by the arrival of the World Wide Web (Lammers and Lips, 2000).

Enschede

Initiatives for advanced eGovernment development in Enschede originated at the University of Twente. In 1995, a group of researchers from four departments[iv] of the university wrote a project proposal called 'Teleloket 1', which aimed at the development and study of an electronic service counter. The initiative built upon previous research on (Legal) Expert Systems and on user interfaces for services such as electronic (theatre) ticket sales. Enschede was approached to serve as a pilot domain. The Enschede alderman responsible for information and communication technology, acknowledged the prospects of the Teleloket ideas to improve public service delivery and decided to team up with the university.

Teleloket 1 was redrafted into a pilot proposal for the OL2000 project ('Ole2000 Know-your-civil-rights').[v] The proposal sketched a vision and a strategy to implement a one-stop-shop for the domain 'building and housing'. The plan was adopted by the national OL2000 programme bureau in September 1996.

When the OL2000 pilot ended in 1999, the ministry of Public Housing, Urban Planning and the Environment, took over part of the projects funding in Enschede and attention shifted to a) the development of more general tools that could be implemented in other cities as well, and b) further integration of related services. The project was renamed from Ole2000 to Ole21.

In 2001 Enschede was selected to become one of the three Super Pilots. In accordance

with the requirements of the Super Pilot project, a policy document *'Programma e-Dienstverlening Enschede'* (Enschede, 2001) was drafted, elaborating the Enschede ESD-policy and its development for the period 2001-2004.

Eindhoven

The first steps in eGovernment in Eindhoven were taken, as so often, by some enthusiasts in Town Hall, who were interested in the possibilities of the new technology and who were lucky enough to be given some room and support.

In this case, these steps were taken in the context of city promotion and citizen information provision. The department responsible for this task was ahead of its time, when it implemented an electronic citizens' information system by means of interactive Teletext (Videotext), in 1990. The citizens of Eindhoven thus were among the first who could not only watch the local pages on their televisions, but also could interact with them, using their normal telephones (Oudshoorn et al, 2002).

Around 1995 focus shifted from Teletext to the Internet and Eindhoven got involved in plans to develop its own digital city. By 1996 the first provisional municipal website was created, which was given a formal status one year later. Subsequently, Eindhoven set out to extend its website in a more formalized manner and to migrate its type of service delivery; from the initial information services, via communication, to transaction service delivery.

In the mean time the mayor, Welschen, and his city manager lobbied to get Eindhoven

involved in several national pilot programmes, which resulted in several other major projects, which will be discussed below.

Millingen aan de Rijn

As in the other cases, the developments in Millingen also started with personal enthusiasm. This time not in the Town Hall or at the University, but as a private hobby of a local police officer: André Vreemann. He developed a personal interest in the Internet and decided to build a website himself. As the primary topic of this website, he chose his home town – Millingen – and started to include local information on the web.

In 1999 one of Millingen's council members was surfing the net and discovered Vreemann's website. He saw the potential of the site, contacted the town clerk, and together they got in contact with its owner. In November of that year, the town council formally adopted the private website. Without much concern for any national policy and without even a local plan, the official municipal domain name 'www.millingen.nl' was registered and after some changes and extensions, including the incorporation of some downloadable forms, the existing site was transferred to its new domain.

4.3. Visions and strategies

The introduction of the OL2000 programme in 1996 and the mission of stimulating local authorities to pick up integrated service delivery and eGovernment has had its effects on eGovernment visions, policy and strategies. A study conducted for the Dutch Ministry of the Interior in 1999, showed that 55 per cent of the local authorities

had policy on integrated service delivery; 84 per cent of the cities with 50,000 or more inhabitants and 54 per cent for the smaller ones (NIPO, 1999). In a follow up study conducted in 2002 (Stegers, 2002), this figure had risen to 58 per cent, the rise to be attributed to the larger cities. This study shows that the principal motivations to develop an eGovernment vision and policy are: improving services (23 per cent), improving efficiency (21 per cent), changes in the physical location of the administration (14 per cent), high number of citizen's complaints (10 per cent), national OL2000 stimulation (9 per cent), and finally mergers on the local level (8 per cent).

Enschede

Enschede's eGovernment vision started with alderman Swart's memorandum '*Enschede aan huis*' (Enschede at home) and the OL2000 project proposal that was based on the *Teleloket 1* proposal. Since the start of the Ole2000 project, a number of documents were produced that outlined aspects of eGovernment. They primarily focused on the principal area in which eGovernment was developed in Enschede, the domains of housing, building and the environment.

The scope widened when the city decided to build a new town hall to house all sectors of the city's administration. At this point, city wide plans for the adoption of ESD were drafted.

Enschede's eGovernment vision was further developed in relation with the application for the Super Pilot project. The '*Programma e-Dienstverlening Ensc*hede' (Enschede,

2001) elaborated ESD-policy for the period 2001-2004. This document takes ESD beyond government - citizen communication in the front-office and addresses the whole process of delivering a product, hence also back-office data processing and decision making. Four areas of particular importance with respect to this notion of ESD are outlined:

- The digital counter. This is to be the principal source of public service delivery. Here the public can find all relevant information on all 497 products within Ole21. It also delivers these products on a ready-while-you-wait basis, whenever possible.
- Unity in communication. The citizen should receive the same information and answers to problems, irrespective of the communication channel (telephone, Internet, letter, or walk in). Ole21 is to be the principal source of information and services for each of these channels.
- Front-office to back-office co-operation. For each product a decision is made with respect to who is responsible for the product, front-office, back-office or machine. On the basis of this division of labour and responsibility, the workflows of the various agents involved is (re)designed making use of IT tools as much as possible.
- Management of production processes. Government should be transparent, and service quality should be as high as possible. Processes have to be audited and performance and quality measures are to be used.

The document further outlines the development of electronic services in stages. Each stage involves a number of requirements defining a service level and the amount of services to be implemented. For instance, level 3, to be reached by June 1, 2003, requires workflows to be transparent so that citizens can see the status of their applications.

Eindhoven

Eindhoven's eGovernment vision and policy has been concentrated in three large programmes: Super Pilot, Knowledge District, and Digistein.

As a ***Super Pilot***, Eindhoven has committed itself to a four year project in which it, together with its partner city Helmond, aims to develop a complete and comprehensive electronic service delivery, tailored to the needs of the citizen as a client, and to explore new ways to make municipal service delivery more effective and efficient (SuperPilot Eindhoven/Helmond, 2003).

The ultimate ESD aim in Eindhoven, which follows from its Super Pilot status, is that each service will be delivered electronically at the highest level 'possible and sensible', and for this purpose it uses the VIND-catalogue's product list, in which for each product an aspiration level has been determined, varying between:

1. Providing information only (currently 76 products);
2. Information and possibility of downloading forms (currently 14 products);
3. Information and possibility of filing requests via online forms (currently 30 products);
4. Electronic transactions - information provision, online interaction and handling (currently 5 products).

Eindhoven aims to provide each service electronically, at its predetermined aspiration level, at the end of the Super Pilot programme in 2004 (see table 3)

TABLE 3 NEAR HERE

Table 3: Some examples of short term ESD ambitions

Product	*Maximum level*	*Current level*

	possible	*available*
Driveway road access	4	2
Handicapped parking licence	4	1
Regular garbage collection	1	1
Notification of building plans	4	3
Certificate municipal population registration	3	3

Source: Project manager SuperPilot Eindhoven

Next to the Super Pilot, ***Knowledge District*** (*Kenniswijk*), is the second eGovernment programme in Eindhoven (http://www.kenniswijk.nl). Its aim is to create an area for experimentation with all kinds of innovative consumer products and services using computers, broadband communication and Internet. In 2005 an area containing about 40,000 families (84,000 persons) should be ahead of the rest of the country by about two-years, providing a test bed that can be used to answer technological questions and to analyse social and economical effects of innovation in an early stage. Knowledge District is a large programme, which potentially dwarfs the Super Pilot. It started in 2002 as an initiative of the Dutch ministry of Economic Affairs, and ends in 2006.

The third large programme, ***Digistein*** aims to develop a breeding ground for experimenting with ICT in the field of social cohesion and participation in the neighbourhood *Drents Dorp* in the city district *Strijp*. It builds on earlier initiatives and projects, such as Knowledge District. Digistein is being developed in request of the ministry of the Interior and Kingdom relations and combines three policy foci:

- Eindhoven's ambition to be a technological centre ('Eindhoven ahead in Technology');

- Eindhoven's aim to be a city where it is good to live ('Eindhoven socially attractive');
- A governance approach of strategic alliances and co-production with societal partners on the level of the city districts ('Eindhoven co-productive')

(Digistein, 2001: 9).

Millingen aan de Rijn

Millingen aan de Rijn never developed a formal eGovernment policy. Although the website has been formally adopted by Millingen, André Vreemann still has much discretion (as long as he prevents and removes offending content). When it comes to future developments the informal goal of the web site remains Vreemann's ambition: To inform Millingen's citizens about the village and its government and to provide access to municipal services and documents.

However, within this informal context, some valuable policy decisions have been made. One recent example, is the uptake of national policy with regard to accessibility of the site for the visually handicapped. The original website was not developed with the visually impaired in mind. As a result of adopting national policy, a redesign was carried out. Another recent decision has been the acquisition of the VIND catalogue as this was considered necessary in view of the maintenance burden caused by the requirement of keeping the site up to date with national regulation.

4.4. Project Organisation and Executive Commitment

In general, the City Council and in some cases the City Board take political and key allocation decisions in Dutch municipalities. The city administration is headed by the Municipal Manager.

Egovernment projects are carried out in various ways. In smaller local communities they are often run in a very ad-hoc way, as shown in the Millingen case. In larger cities there are formal projects that run for a specific period. Enschede, for example, more or less follows this path. In cities, where eGovernment is more mature, development may be embedded in the line organisation, with only smaller innovative pilot projects detached from the line organisation.

Enschede

The municipal website (www.enschede.nl) was initiated and run by the communications department as a project of the city's communication officers, supported by the ICT staff of the Facilitative Services department. In 2001, the responsibility for the website was transferred to the Corporate Staff and Communication department and the tasks and responsibilities were embedded in the line organisation.

The Ole2000 project started as a project of the Alderman for Culture, Sports and Urban Policy, and was adopted by the city board in the summer of 1996, when the OL2000 pilot project proposal was drafted. The city's administrative management was involved as the enterprise management team, consisting of the heads of the various city departments, decided that the project was to reside under the manager of the Registry general (with political responsibility resting with the said alderman). The daily operations were coordinated by a taskforce. The project was supervised by an executive steering committee consisting of members of the city's management team.

There was also a 'partner board' consisting of (senior) representatives of the consortium partners.

With the introduction of the *'Programma e-Dienstverlening Enschede'* (Enschede, 2001), the organisation of Ole2000/Ole21 has changed. Now, the mayor and alderman decide on the annual budget and programme, and the enterprise management team commissions the Ole21 team and appoints the program manager. The program manager is the director of the Ole21 team, which at present consists of 18 full time equivalent (fte), and has two sections: development, and content and maintenance. Ole21 is largely developed in house, programmers are contracted when necessary. The original Ole2000 consortium (discussed below) no longer exists.

Eindhoven

The overall Super Pilot programme of Eindhoven is managed by a programme co-ordinator under the responsibility of the Mayor and Alderman. The various sub-projects in this programme are developed within the individual departments of the city. Three types of projects are distinguished:

- Broadening projects: which aim at the further development of services (e.g. developing a system for booking sports facilities).
- Deepening projects: which aim at adding extras to existing services in terms of functionality (e.g. adding forms and status information through links with administrative systems), and
- Explorative projects: which aim at experimenting with advanced forms of electronic service delivery.

Kenniswijk is developed as public-private partnership and is run as a private firm

(Dutch: BV) with some 27 companies and public organisations as its shareholders. The city of Eindhoven is one of them. Digistein is also a public-private partnership in the form of a foundation managed by Mel@nion (see below).

Millingen aan de Rijn

In Millingen the only formal steps taken are the official adoption of the website by the town of Millingen, the official appointment of its maker as a part time city clerk (0.2 fte) and the formulation of a short contract stating some competencies and responsibilities of both parties involved. Apart from this, and the fact that the municipality is now paying for the equipment and Internet access, we can hardly speak of any (further) formal organization. However, there seems to be a rather effective informal co-ordination. Most arrangements are simply made on a personal basis, with the municipal staff and with the council members and there are agreements on the information and forms to be included on the website. Also, the city's information officer maintains some of the information on the site.

4.5. eService and eParticipation Applications

The degree of maturity and the services offered by Dutch municipalities varies considerably. Most municipal websites at least have the basic facilities that can be expected of such a website: contact information, information on the political makeup of the city board, and information on various municipal products. Also minutes of the city council are quite common.

Maturation of eGovernment is a topic in the world of local administration. Snijder *et al.* (Snijder et al., 2003) report that a considerable proportion of the local authorities

has plans to further develop both eServices (29 per cent) as well as to experiment with, and implement, forms of eParticipation (see table 4).

TABLE 4 NEAR HERE

Table 4 Local authorities plans with respect to their websites.

Plans for 2004 (n=172)	***%***	***Plans for after 2004 (n=173)***	***%***
extend products and services catalogue (e.g. VIND)	29	extend products and services catalogue (e.g. VIND)	39
implement eParticipation	17	implement eParticipation	31
general website improvements	17	implement policy information systems	10
improve website maintenance	16		

Source: Snijder et al. 2003

Most local authorities report that they aim to base service delivery on back-office systems, especially with respect to services depending on the Registry General, such as moving house, and obtaining birth and mariage certificates.

With respect to eParticipation services, there are notable differences between small communities and larger cities. Of the larger cities (> 50,000 inhabitants) 45 per cent report to have experimented with eParticipation. Of the municipalities with less than 25,000 inhabitants this figure is 19 per cent (Snijder et al., 2003). Forms of eParticipation, which are most frequently used, are web surveys (69 per cent) and discussion forums (64 per cent).

Enschede

The most important services of the main Enschede website (www.enschede.nl), which can be seen as a portal, are:

- Enschede lives: city, culture, education, business, sports and recreation, shopping, living in Enschede, statistics, city archive, webcams, links, event calendar;
- Digital counters: link to www.loket.enschede.nl and other digital counters;
- Politics and administration: how does a city work, mayor and aldermen, city counsel, diary of meetings, agendas, reports and decisions, questions submitted by the council, electoral information;
- City districts: content varies per district;
- Projects: main city projects;
- Organisation: city contact information, structure, job vacancies;
- Businesses: link to business point, effects of city policy on safety for businesses (as a result of the 2000 fireworks disaster).

The public library has its own website, independent of Enschede.nl.

Ole21 is the one-stop-shop for electronic service delivery. It has detailed information on 497 services, and offers interactive services for roughly 65 of them. In 2002 Ole21 had more than 100,000 visitors and the number is rising rapidly. Table five shows the number of page visits for the most popular informational services.

TABLE 5 NEAR HERE

Table 5. The most popular *information* services in Enschede in 2002

Service	*# of requests*
Land registry information	30236

Passport	6970
Change of address	6144
Certificates of registry general	6118
Marriage proceedings	6030
Building lots	5598
Poll tax report	5492
Addresses and opening hours	5168
Building permit (for minor changes)	4360
Maps	3778

Source: (Vos and Essen, 2003)

The most popular *interactive* services in 2002 were:

- Changes of address (1269 request = 14,1 per cent of the total changes of address). This service is primarily used by students, who account for most movements in Enschede.
- Appointments for the application or renewal of a passport were made (691 requests = 7,2 per cent of the total passport applications/renewals).
- Certificates of the Registry general (birth, residence etc) (329 requests = 4,4 per cent of the total number of requests for these certificates)

The rising popularity of Ole21 is partly due to the amount of effort put in advertising the digital system as an important service channel. Every few weeks small billboards are put up, advertising particular features of the Ole21 system such as 'You can complain about garbage online', or 'Report your change of address online'. The latter advertisement led to a doubling in online change of address requests when the campaign ran in August/September 2003.

Citizen to government relations are less developed in Enschede. The city does not offer online discussion forums, nor are there regular chat sessions with politicians.

Polls are held occasionally and also online questionnaires are sometimes used.

Eindhoven

At this moment the three main projects in Eindhoven are still in the process of being implemented. Both ESD and eParticipation are actively pursued.

The current version of the municipal website offers extensive information services and many possibilities of interaction.

eParticipation is less developed. Although, the present website offers online forums on policy issues and is used to involve citizens in developing policy, e.g. through online questionnaires. The results of eParticipation projects are included on the website. Chats are not used on a regular basis, and online Polls are not a standard feature.

In connection with the Knowledge District, the first live broadband transmissions of council meetings have been organized in which citizens can follow the meetings on video, while having direct access to all kinds of relevant information such as live commentary, background information about the speakers and official files.

In Digistein, several creative activities have been developed. There is a diversity of local websites (e.g. a site with historical facts on the neighbourhood, a website maintained by an editorial staff of local school children and a 3D virtual walk around). There are several public access points and a broadband LAN in the community centre, on which ‘LAN parties’ are organized. In September 2003, the

first neighbourhood Internet television show was broadcast.

Millingen aan de Rijn

As explained, the main reason to include Millingen aan de Rijn is the high score of its website in a recent national benchmark. And indeed, it should be said, does provide much relevant information.

The Millingen website is a public/private portal on the town of Millingen. On the public side, the website contains the VIND catalogue of municipal products, city council information (agenda of meetings, meeting minutes and other documentation), and contact information (opening hours, telephone numbers, email address). During the last years the site has grown to a total of about 1900 pages, with around 60 online forms (50 to be downloaded, signed and sent to town hall by normal mail and 10 to be filed in online).

On the private side, the website provides information on topics such as tourism (boat trips, swimming, visitors centre, hotels, pubs), schools, doctors, dentists, public transport, parking, the cities history, flag and its coat of arms. All this information is accompanied by pictures and photographs taken around the village.

eParticipation is underdeveloped. The website offers online forums for policy issues, as well as a poll.

Further developments of the website are not really planned, but initiatives and ideas – from local and national sources – are taken up (or not) based on a personal evaluation

of the people involved.

Development of the web site as an intranet for council members is under study, as it would be a useful extension since all Millingen council members have Internet access.

Analysis of the log files shows that the citizens of Millingen use the site quite frequently (around 100 hits every day) for news and information. Some people consult the site when a fire engine passes through the village or when the trauma helicopter lands and some access the municipal website as a local portal to go to other websites. Others simply look for information on municipal services and to download forms. More and more people access the section of council information to learn about the political process.

4.6. Technology

The vast majority of computers in use in local administrations in the Netherlands are PCs running Microsoft Windows and Microsoft Office. Back Office systems run on a variety of platforms: PCs and mini's and mainframes running NT, UNIX or Linux. Next to the general purpose office applications, there are task specific applications for the various municipal tasks, such as the Registry General. These applications are developed by a very limited number of software developers. The two primary suppliers on the municipal market are Pink Roccade/Civility and Centric. A complaint voiced by a growing number of local authorities is that this provides a strong lock-in: it is hard for municipalities to change supplier, and it is equally hard for newcomers to enter the market for municipal applications.

In an effort to open up the market, to reduce cost of ownership, and to provide more freedom for public administrations, the central government is promoting Open Source initiatives.

Another problem voiced by many municipalities is the lack of digital signatures and Public Key Infrastructure for use in eGovernment. Digital signatures are a matter of national policy and only recently, in July 2003, legislation on digital signatures came into force.

Electronic payment for eGovernment services has up to now been a problem too. This problem is now being solved, as the Bank Nederlandse Gemeenten (www.bng.nl), the Bank of Dutch municipalities, is starting to act as the collector of eGovernment payments for local authorities.

Enschede

The city of Enschede has about 1500 fte personnel, excluding school personnel. There are 1467 PCs and each city employee has an email account and has access to the city intranet and the Internet.

The city has an NT network and uses TCP/IP for Internet connections. The servers that are used in electronic transactions are based on Unix and Windows operating systems. The development of transaction services relies mainly on ASP solutions and programming tools that are interoperable with MS Windows platform.

Identification for eGovernment services, if necessary, is done by personal data, such

as the number on identity papers, date of birth and postal code.

Eindhoven

Eindhoven has a city wide intranet, to which the vast majority of its 2200 employees is connected. The cities administration uses the Centric administrative package and the website is secured through a Secure Socket Layer.

When citizen identification is required, this is done by a username password combination and in February, 2004 Eindhoven has introduced an Internet payment system, as one of the first cities in the Netherlands

Millingen aan de Rijn

In Millingen, the technical infrastructure in the town hall consists of a Novell network (installed in 1998) with 46 personal computers running an office package and with an AS 400, which runs one of the standard administrative packages for Dutch municipalities (Roccade-Civility). This town hall network is connected to the national municipal network: Gemnet. Completely separate from this town hall network and from Gemnet there is the Internet site which is hosted by a commercial Internet service provider.

Millingen does not make use of online signatures or digital payment. In the past the municipality has been contacted by a private bank, which was interested in implementing ePayment, however, the decision was made that the benefits of having ePayment were not worth the estimated costs and expected difficulties.

Finally, at some point in the future, the website may be transferred to the Gemnet

network in order to enable data transfer between eGovernment applications and administrative applications. At the moment this step is still doubtful, because providing the website through Gemnet is considered too expensive and also somewhat impractical (e.g. the transfer to this closed network would make it impossible for Vreemann to maintain the website from his home).

4.7. eSkilling

Computers are commonly used from the top of the organisation down to the work floor in most local authorities The fact that the Enschede alderman responsible for ICT in the early days of the OL2000 project was very computer literate is telling in this respect. The computer skills of course vary form person to person. Training is, if necessary, generally available. However, it should be noted, that many municipalities rely heavily on – and actually depend on – expensive external expertise. This external expertise not only comes with the acquisition of all kinds of standardised packages, but is often hired on a project basis, from software houses and business consultants.

4.8. Motivational Basis of G2C and C2G Relations

The motivational basis for government to citizen relation is a widely felt need to improve public service delivery to conquer the present fragmentation in services and to better reach citizens who depend on particular services (housing benefit, for instance). These ideas have been actively promoted by the programme bureau OL2000, and municipalities have been stimulated to implement eServices by means of subsidies and advice. In recent years the national government is also promoting eParticipation, and this appears to catch on in local authorities (see 4.2.3).

Enschede

The urge to developing eServices is well established within Enschede. The main motivation for developing eGovernment in Enschede has been a combination of 'modernity', an ambition to improve service delivery and expected efficiency gains.

The original development of eGovernment was in line with the ambition to develop Enschede, and its surrounding area, into a high tech industrial area (business and science park) and to bring high tech services to the Enschede citizens.
More recently development is focussed on improving efficiency. A study of nine products and services for which electronic services were offered has shown improvements in effectiveness (lower cost) and a lower workload (reported in Vos and Essen, 2003). People handle more of their affairs online, and when they do visit town-hall, they come better prepared and make appointments in advance.

Egovernment in Enschede has also been furthered as a result of changes in the physical organisation of the city's administration. First, a merger of the building and housing department with the environmental department resulted in a concentration of the front-offices of the two departments (some 14 before the merger). This joined-up front-office required ICT support because it was staffed with generalist personnel. The Ole2000 system provided this support. The adoption of a new town hall in 2001 duplicated this process a larger scale

Eindhoven

While high tech industry clearly dominates Eindhoven's past and present, it also is a source of inspiration. This is expressed most clearly in the city slogan: 'Eindhoven

ahead in technology'. It thus comes as no surprise that Eindhoven is one of the cities trying to be a leader in ICT development and application, not only in its industry but also in the field of eGovernment.

As far as ESD is concerned, Eindhoven's eGovernment co-ordinator feels that while the original OL2000 programme and also the start of the Super Pilot aimed almost exclusively on creating benefits for clients, economic reality is recently causing a shift in focus. Decisions about which projects to pursue are increasingly influenced by considerations of effectiveness and efficiency. Therefore, the benefits of eGovernment for the city may gain importance over the benefits for the citizen, although they need not be incompatible, as Eindhoven still aims at the further development of multi channel service delivery where individual citizens can select the service channels that suit them best.

Millingen

In Millingen, the motivational basis for eGovernment is clearly developing. As sketched above, the website started as a result of personal curiosity and enthusiasm, both from the side of the web site's developer, as well as from members of the town council. This is still true today.

However, as the website develops further, its importance and its possible benefits are becoming more evident. One example of this is that the website is now regarded as a source of efficiency and organizational development. The fact that online forms are used increasingly, instead of personal visits, means that work is done more efficient

(doing several forms in one go). Also the website is regarded more and more as an important instrument for tourist promotion.

4.9. Identifying Users' Needs

A recent study by Trendview (Fase, 2003) reports that the services most wanted by people with Internet access are: change of address (75 per cent) and filing complaints (70 per cent). Registering the birth of children is a service some 43 per cent of the respondents would like.

Enschede

Citizen involvement in the development of eGovernment has been limited in Enschede, although usability studies have been carried out. Early in the process eight 'ordinary' citizens were monitored in performing tasks with the system. In later stages other usability studies followed, the most recent one in the summer of 2003 (Vegt and Olde Scholtenhuis, 2003). This latter survey shows the following (N=396):

- 71 per cent of the respondents is between 18 and 39 years old;
- For 28 per cent of the respondents it was their first visit of the digital counter. 24.2 per cent had visited the counter 2 to 5 times, and 34.6 per cent already had over 5 visits;
- The respondents value the quick overview of services, clear presentation, amount of information and the options to search for services, but are less content with navigation, lay-out, the number of services and the menu search option;
- Most users (62.1 per cent) were capable of finding the relevant information without much problems;
- The comprehensibility of the text on the website was judged excellent;

- The respondents valued the digital counter with a score of 7.2 on a scale from 1 to 10, while male respondents were somewhat less content (6.9) than female respondents (7.6);
- 76 per cent of the respondents said to have found what they came for;
- 95 per cent reported to be content with the results and 81 per cent indicated that they would certainly use the counter in the future.

Other research shows that both citizens and the municipality benefit from the digital counter because it requires fewer physical visits. The more services become online in a transaction manner, the less people need to visit the physical counters.

Although accessibility for the impaired is a requirement in the Super Pilot covenant, Enschede lags behind in this respect, and also support for non-Dutch speakers is very limited. The city portal – enschede.nl – provides some information in English and German. The Ole21 system is in Dutch only. This limitation is especially surprising given the fact that 12.1 per cent of the Enschede population is of non-western origin and may be expected to have problems with the Dutch language to some degree.

Eindhoven

The three programmes in Eindhoven clearly require citizen involvement in many ways, and from their design, this involvement is partly built in. Knowledge District and Digistein clearly address citizens as active participants in new experiments, and especially Digistein is explicitly open to local initiatives.

Moreover, Eindhoven applies several methods to involve its citizens in various eGovernment developments. One, more general way of getting input from the citizen

is the so called *digipanel*. This panel, for which Citizens can register, is invited on a regular basis, to give its opinion concerning the city and its affairs, among which eGovernment.

Another citizen involvement in 2002 has been realized in a larger research project in which Eindhoven combined online surveys, group sessions and individual sessions. Here the focus was Eindhoven's website, the information requirements of citizens, the information provision, the ease of use and the design of the municipal website (Eindhoven, 2002).

In addition to these larger initiatives aiming at citizen involvement, there are also examples of small scale studies in which citizens from the Knowledge District and Digistein have been invited on an ad-hoc basis to participate in testing prototypes.

Next to having users have their say in eGovernment development, the city also takes care not to exclude citizens from the online world. At an early stage of development, the city took on contacts with the *Meer Samen* Foundation ('More Together'), which promotes enhancing the labour market prospects of persons with functional impairments (www.meersamen.nl). The result is that accessibility of the municipal websites for the (visually) impaired receives special attention.

Millingen aan de Rijn

Although Millingen has conducted no real research among its citizens with respect to their needs (the last general service monitor was conducted in 1999), the feeling is

that the initiative caters to the needs and wishes of the population. The surfing behaviour and especially the search strings entered through the search engine are an important source in this respect. André Vreemann simply monitors what people are looking for and uses this information to maintain his site. Additionally, there is simply the matter of trust that the community is so small that any pressing desires will surface rather sooner than later.

4.10. Partnership and Co-operation

In general, the forming of Public Private Partnerships to achieve public goals is rather popular in the Netherlands. This is especially the case for e-society programmes, in which Dutch government is combining different roles, not only as an end user of technology, but also as promoter of economic development and technological innovation. Many programmes and programme subsidies implicitly or explicitly promote the development of public private partnerships, for instance by matching budget clauses which require private business investments. In this context, OL2000 and also Eindhoven's Knowledge District are two examples in which such matching budget requirements were formulated.

Enschede

The original OL2000 project consortium consisted of the city of Enschede, the University of Twente, KPN (Dutch Telecom), the Dutch Institute for Welfare and Well-being (NIZW), SightLine (software developers) and BVBijvoorbeeld (web designers). The consortium broke up in 1998/1999. The city has in recent years collaborated with Ontwerpbureau 10 (design bureau), Carp, and the University of Twente. There have been a number of students working on the project as part of their

master's thesis' research from the University of Twente, the University of Nijmegen and the Polytechnic University (Saxion).

Enschede participates in some national and regional networks (e.g. the Super Pilot group, the network city Twente platform), but surprisingly, Enschede is not involved in European projects, nor does it have explicit links with cities outside the Netherlands.

Enschede co-operates with the cities of Oldenzaal (30,000 inhabitants) and Hellendoorn (32,000 inhabitants) to implement ESD systems based on the Ole21 system in their websites (http://www.oldenzaal.nl; http://www.loket. oldenzaal.nl and http://www.hellendoorn.nl).

Eindhoven

Both the Knowledge District and the Digistein programme are developed in the form of formal partnerships.

Knowledge District is set up as a large Public Private Partnership taking the form of a private company: BV Kenniswijk. This company started its activities in February, 2002, after a lengthy planning phase. The city of Eindhoven is one of the 27 partners involved in BV Kenniswijk. The other partners are large firms such as Shell, Philips, KPN (Dutch telecom), DHV (advice and engineering) and Casema (cable), but also the Technical University of Eindhoven and the Dutch State.

Digistein is managed by the foundation Mel@nioN, which is founded by the Digital City Eindhoven, SeniorWeb Eindhoven and Loket W – Digitolk, with support from a variety of local non-profit organisations and other local partners (such as the housing corporation and the library). The project moreover contains an example project: WWWijkopbouw – aiming at city development and social infrastructure, and it administers a fund for smaller grassroots initiatives.

Millingen

In Millingen there are no formal partnerships but there is a strong involvement of many local parties, such as local sporting clubs (football, volleyball, marksman), the cable newspaper, the local radio station, the school, the local pubs, doctors, dentists, local businesses and even the local ferryman. All these parties are interested in having their information on the local web site and provide André Vreemann with news and updates, all on a non-commercial basis. Any important news is placed on the site itself (e.g. a pop-up at start up warning the citizens that the local ferry is temporarily out of service). In addition, the site contains many links to other websites maintained by such parties.

4.11. Aspects of Resource Allocation

Snijder *et al.* (Snijder et al., 2003) in their study 'behind the municipal website' concluded that 75 per cent of the municipal websites are run by the municipal communications departments (N=55). In small communities (less than 10,000 inhabitants) on average 0.33 fte is devoted to maintaining the website (of a total of 47 fte these municipalities on average employ). In 100,000+ cities, the average number of fte's involved in website maintenance is 1.9 on a total of 1383 fte employed on

average.

The cost of maintenance is about € 5000 for a small town, while the cost runs up to € 25,000 euro for large cities. Less than half of the municipalities in the survey (42 per cent) has an annual budget for further development.

Enschede

Currently, the yearly capital and running cost of the ICT facilities amount to about 8 million Euros. This figure can be broken down as follows. About 1.5 Million Euros is spent on IT staff – 20 to 30 people, depending on what is taken into account. The annual budget for hardware and software (licences) is 3 Million Euros. In addition, the central IT facilities with back-office applications, cost around 3 Million Euros. With respect to the Ole21 project, the running cost for the period of 1 July 2004 (when the Super Pilot project finishes) until 31 December 2004, is expected to be € 265,000. The three departments in the city each contribute € 61,000 to the project annually, the rest is covered from the city budget. However, after 2005, the yearly funding available may consists only of the contributions of the three departments (€ 183,000).

Eindhoven

As a large part of the eGovernment activities in Eindhoven is organized through complex partnerships and there are continuous changes in programmes and projects, it is very difficult to get exact figures in terms of people and money involved in 'eGovernment'.

For the three separate programmes, the following funds have been *reserved*:

- For the Super Pilot, Eindhoven together with its partner, the city of Helmond, has access to a state subsidy of about 2.7 million Euro, for the period October, 2001 until the end of December, 2004. This subsidy is given on the basis of *concrete project plans* and bound to a *matching condition* which states that Eindhoven and Helmond themselves have to invest an equal amount (in terms of money and personnel).
- For the Knowledge District programme a state subsidy of 45 million Euro has been reserved for a period of five years, *on the condition that this budget is matched by the private partners*.
- For Digistein, for a period of two years, a total budget is foreseen of 3.6 million Euro (0.6 million Euro provided by the municipality, 1.2 million Euro by private partners and 1.8 million Euro by the National Action programme Social Quality and ICT).

Although the total amount of reserved funding is impressive, there is an important catch. Given current economic conditions, it is clear that especially the private partners will not invest as much as initially foreseen. This means that, although the Super Pilot and Digistein are still expected to meet their original investments, the Knowledge District programme certainly will not. The eventual investments in this programme will depend on future plans of the municipality and on the actual preparedness of the other partners involved to invest in them. Given the current state of the economy, this investment will be only a fraction of the 90 million Euros foreseen at the start of the project.

As far as personnel is concerned, the picture is not much clearer. All the different partners have personnel involved in the projects and BV Kenniswijk currently

employs 12 persons. The number of city personnel involved in the different projects varies, but at any one time it is between 50 and 100. In addition to this the city employs quite a lot of external specialists for diverse purposes.

Millingen aan de Rijn

In Millingen, the means for maintaining the website and for any other ambitions in eGovernment are very limited. For the whole eGovernment project (town hall and the web site) less than 2 full time equivalent is available and the average yearly total expenditure is a little under € 190,000.

4.12. Lessons learned and critical aspects

Enschede

The Ole21 project is underway for over 6 years, and a lot has been learned (for more detailed accounts see for instance Lammers and Lips, 2000, Vos and Essen, 2003, Leenes, 2002).

One of the most important lessons is that the implementation of electronic service delivery is difficult. The primary reason may well be the fact that ESD development is much more an organisational change project than a technical project dealing with the development of an electronic front-end to the existing organisation.

ESD development touches upon the essence of public service delivery: the work processes behind the services, and hence it touches upon known touchy areas such as tasks and responsibilities, power structures, and private and public agenda's. In some cases the development of ESD leads to radical redesign of procedures (and therefore

people's positions). The service module for the city centre parking permit is a case in point. The old procedure was document based (identity papers and proof of residence and vehicle ownership). The electronic procedure instead relies on online authentic registers, possibly making the traditional clerk redundant.

There is strong political and management commitment for Ole21, although its further development is clouded pending budgetary discussions. Alderman Swart's commitment and ambassadorship over the years has been an important factor in Ole21's success.

The Ole21 system is rooted in the organisation, but there is room for improvement. The digital counter is seen too much as a project of the Registry general, the project's current host department. The other departments, such as social affairs and economic affairs, therefore do not see the potential of ESD and do little to stimulate the proper implementation of 'their' services.

The content relation managers are rather passive and are often behind on updating information. This is primarily due to the fact that their principal task is to implement new services, while updating existing services and information has to be done in idle time. The domain experts are not much of a help in this respect. They are too passive and rely on the Ole21 development team to take action.

Finally, on the lowest level, that of writing website content, problems arise because it turns out to be very difficult to produce concise text that is understandable by even the

least educated users.

Eindhoven

Although the projects in Eindhoven seem to manage rather well, the cities programme co-ordinator identifies several critical success factors for the development of eGovernment in his town.

In general, the most important factor has been council level commitment. The commitment of the former mayor and his city manager have been essential in getting Eindhoven where it is today. Their networks and ambassadorship were instrumental in attracting state funding and in developing the Public Private Partnership around Knowledge District. Also commitment on the council level is crucial within the city itself when it comes to allocating and protecting project resources.

Another factor which is increasingly important for more advanced ESD development is the availability and development of basic registrations as reliable data sources.

A third, interesting problem, which requires serious attention, is the lack of awareness of Eindhoven's citizens of the ESD initiatives. Whereas Enschede has billboards and advertisements to inform its citizens about the electronic counter and its possibilities, Eindhoven has done nothing of the sort. People therefore have to find the websites on their own, which means it takes far more time for the new facilities to become widely used.

Finally there is the concern about future resources. Especially Knowledge District faces specific problems due to its dependence on a large number of public and private parties in turbulent economic times. When the partnership was developed at the height of the Internet boom, the prospects of the project were regarded as excellent and all partners were likely to invest heavily in this type of project. The Internet hype has passed and we have witnessed several years of economic slow down. This has made partners more reluctant to invest in the Knowledge District.

Millingen aan de Rijn

The highly informal context in Millingen is seen to provide both benefits and problems: having no official plan gives the developer much freedom but also hampers development when co-operation from the village bureaucracy is needed.

Although the website was never really steered from the town hall, an interesting finding is that it is gaining relevancy for administrative practices and having explicit consequences for the town's bureaucracy. The fact that suddenly there was a website with electronic forms, for instance implied that the municipal workers had to accept and process these forms on a regular basis, which required arrangements to be made in the town hall's workflows.

5. The Broader Picture

At first glance, the Netherlands seems to be in an excellent position to develop eGovernment (as also noted by Oakley, 2000). Its population is well educated and relatively prosperous, and broadband Internet penetration in households is relatively

high. Also, the Netherlands has been one of the first countries to start defining national programmes to develop electronic service delivery on the local level.

As we have seen in our cases, there now are several examples of cities, but also of smaller municipalities, doing rather well in this respect. The Super Pilots have already gone a long way, and even a village like Millingen has done a marvellous job in realizing Internet presence.

However, if we reflect on our cases and the more general data for the Netherlands, the overall picture is less favourable. The maturity of the municipal websites is not always high (see figure 3), citizens judge the service quality 'passable' (table 1), and there are not many online services transaction services, to name but a few problems.

The shortcomings of Dutch eGovernment become even more apparent when we look at international benchmarks. These show serious reasons to worry. Although the Netherlands initially was among the eGovernment leaders in the world, it is now clearly slipping. The amount of fully online services is low, and progress in developing these is lower than in other European countries (CGEY Cap Gemini Ernst & Young, 2004).

The reason for this lagging behind may be understood when we look at the institutional context in the Netherlands, where municipalities, as the key providers of public services, have a strong autonomy, value voluntarism almost above anything else, and perform on a scale where they seem to have little to gain from ESD.

The problems of Dutch eGovernment development begin with the questions of policy, steering and central coordination. The Ministry of the Interior and Kingdom Relations seems to be made for this part, but operates within the constitutional make-up of the Netherlands in which the Dutch governmental culture, which acknowledges the autonomy of the different layers and sectors of government (ministries), plays an important role. In practice this results in little room for centralized policy making.[vi] In the Netherlands it is felt that eGovernment development requires voluntary participation and consensus among the different participants, making it a typically Dutch syrupy process, the famous *'Poldermodel'*.

Actual eGovernment development is therefore a question of local ambitions and opportunities. On this local level there is much inertia. As Hoogwout (Hoogwout, 2001) points out, there are many factors that make investing in ESD on a local level not very sensible. The frequency of most service encounters is low (e.g. passport, once every 5 years for 70 per cent of the population, rental subsidy once a year for 8 per cent of the population). And to further downplay the need for change: citizens are quite content with service delivery as it is. So, in a small town, the benefits seldom seem worth the efforts. It should therefore not come as a surprise that local authorities are not too keen to jump the eGovernment bandwagon.

Thus, although there are municipalities that are in themselves enthusiastic about eGovernment – such as Enschede, Eindhoven and Millingen, the central government has to invest in order to get things going on a larger scale. The OL2000 project and

the projects following in its heels, with a culmination in the Super Pilot project are examples of this insight put into practice.

If we take a step back, there is also another institutional factor that may call for slower than anticipated progress. The primary focus of ESD in the Netherlands has always been the municipalities. Since they account for some 70 per cent of the public services, and are the natural service point for the citizens, this seems very sensible. But are they really the ones that should develop ESD?

Leaving aside the national and regional services, and focusing on the local level, we may observe that not all services are equal. As we have discussed earlier (Leenes and Svensson, 2002), three relevant types of services are delivered by municipalities:

- Truly local services: i.e. services which are provided on the basis of local policy and local autonomy, concerning the management of the municipalities' own affairs, free from interference by the State. Examples of such services are: street and community care and safety, local taxes, sports, recreation and culture.
- Joint governance services: i.e. services which are rooted in national legislation, but which are administered by the municipalities, with the municipalities having their own (additional) policy responsibilities and discretionary powers. An example in the Netherlands is the municipal social assistance, based on the General Assistance Act.
- Municipal delivery of national services: i.e. the administration of national policy by the municipalities, where the policy is completely defined at the national level and discretion is limited and the administration by the municipalities is simply a convenient means of bringing the service to the citizens. Clear examples of such services are the issuing of driver's licenses and passports.

The natural candidate to develop online delivery of these services seems to be the institution from which they (legally) originate. In this view electronic services for passports or driver's licenses should be developed at the national level. And, the development of strictly local services may be expected to take place at the local level. However, this division of labour is not often seen in the Netherlands. Although development of online services for national policy mainly takes place at the national level, also local authorities provide information for these products. Most local authorities, for instance, have tailor made information on rental subsidies, including rental subsidy calculators on their websites, while this is a national service.

Also, for the rest of the services, almost all development takes place on the local level. As a result, many municipalities are developing online services for what are basically very similar products. This seems not only inefficient, but given the limited resources most municipalities have at their disposal, is also a slow and cumbersome process. When municipalities realise the amount of effort needed to do a proper job, they may even throw in the towel, and wait for better times.

How will Dutch local eGovernment develop in the near future? At this moment, exactly 250 of the 500 Dutch municipalities have less than 20,000 inhabitants and in that sense, they have probably more in common with Millingen than with the super pilot cities of The Hague, Eindhoven and Enschede (which are all in the top 12 of largest cities). Given the Dutch development model, this implies they really cannot do much better than Millingen and maybe should even take Millingen as a role model.

On the brighter side, there are hints that the ideas on (e)Government development are changing. To mention a few. The Netherlands is also in a process of Municipal reform, in which smaller municipalities merge to form larger ones. Local autonomy is being questioned on aspects relating to service delivery (BZK, 2001). In this context, local authorities are now starting to co-operate more in the development of online services, for example on submitting building plans (Hoogwout, 2003).

6. Interviews

Enschede:	Robin Grimmelikhuyse
	Carmen Olde Scholtenhuis
	Mark Vos
	Hans Koenders
Eindhoven:	Nanna Sonnemans
	Paul Vos
Millingen aan de Rijn:	André Vreemann

7. Selection of web resources on the Dutch national framework for eGovernment

http://www.overheid.nl

The top level government portal

http://www.superpilots.nl

The website with news, reports and resources of the Superpilot projects.

http://www.ictu.nl

Portal of all national programme bureaus involved in egovernment development

http://www.egem.nl

Egem supports local authorities in improving service delivery

8. Selection of web resources of the case cities

The city of Enschede

Home page of the city of Enschede

http://www.enschede.nl

Enschede virtual counter

http://www.loket.enschede.nl

Network city Twente

http://www.twentenetwerkstad.nl

Business point Enschede

http://www.bedrijven.enschede.nl

Reconstruction site Fireworks disaster

http://www.wederopbouw.enschede.nl

The city of Eindhoven

The municipal website of the city of Eindhoven

http://www.eindhoven.nl

Registration for the municipal digipanel

http://www.eindhoven.nl/?enq=digipanel

Knowledge District management agency (BV Kenniswijk)

http://www.kenniswijk.nl

Mel@nion

http://www.dse.nl/melanion

Digistein project

http://www.digistein.nl

Millingen aan de Rijn

Municipal website of Millingen aan de Rijn

http://www.millingen.nl

9. Literature

Bongers, F., Vandeberg, R., Schuurman, K. and Holland, C. (2002) *Burgers aan het woord: Oordelen en klachten over de elektronische overheid,* Dialogic Innovatie & Interactie.

BZK (1995) *Terug naar de toekomst: over het gebruik van informatie en informatie- en communicatietechnologie in de openbare sector,* Den Haag: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties.

BZK (1998) *Actieprogramma Elektronische Overheid,* Den Haag: Ministerie van Binnenlandse Zaken.

BZK (2000) *Contract met de toekomst,* Den Haag: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties.

BZK (2001) *Burger en Overheid in de informatiesamenleving: De noodzaak van institutionele innovatie.*, Den Haag: Ministerie van Binnenlandse Zaken, Eenmalige adviescommissie ICT en Overheid.

CGEY Cap Gemini Ernst & Young (2002) *Online availability of public services: How does Europe progress? Web based survey on electronic Public Services,* Bruxelles: EU Commission, DG Information Society.

CGEY Cap Gemini Ernst & Young (2004) *Online availability of Public Services: How is Europe progressing? Fourth measurement, Oct 2003.*, EU Commision, DG information society.

Donk, W. B. H. J. v. d. and Meijer, O. M. T. (1994) Beleid voor informatisering, in *Informatisering in het openbaar bestuur,* Zuurmond, A., Huigen, J., Frissen, P., Snellen, I. and Tops, P. (eds), Den Haag: Vuga, pp. 29-54.

Eindhoven (2002) *Veelbelovend Eindhoven,* Eindhoven: City of Eindhoven.

Enschede (2001) *Programma e-Dienstverlening Enschede (Programme Electronic service delivery Enschede),* Enschede: City of Enschede.

EZ (1994) *Nationaal actieprogramma Elektronische Snelweg,* Den Haag: Ministerie van Economische Zaken.

Fase, S. (2003) *De burger en de digitale gemeente (Citizen and the digital local authority),* Almere: Trendview.

Hoogwout, M. (2001) Leuker kunnen we het niet maken, maar willen we het wel makkelijker? Waarom overheden geen haast hebben met het verbeteren van de dienstverlening, in *Klantgericht werken in de publieke sector: Inrichting van de elektronische overheid*Van Duivenboden, H. P. M. and Lips, M. (eds), Utrecht: Uitgeverij LEMMA BV, pp. 149-166.

Hoogwout, M. (2003) Super Pilots, Subsidizing or Self-Organization: Stimulating E-Government Initiatives in Dutch Local Governments, in *Electronic Government. Second International Conference, EGOV 2003, Prague, Czech Republic, Sept 2003,* Vol. LNCS 2739, Traunmuller, R. (ed.), Berlin etc: Springer, pp. 85-90.

de Jong, H. M. and Schuszler, P. A. (1999) *Staatkunde Nederland in drievoud,* Bussum: Coutinho.

Lammers, K. and Lips, M. (2000) Netherlands, in *One-Stop-Government in Europe: Results from 11 national surveys*Hagen, M. and Kubicek, H. (eds), Bremen: University of Bremen, pp. 401-466.

Leenes, R. (2002) The Enschede Virtual Public Counter: OLE 2000 a case study, in *Electronic Government - Design, Applications and Management,* Grönlund, Å. (ed.), Hershey, PA: IDEA Group Pub, pp. 202-222.

Leenes, R. E. and Svensson, J. S. (2002) Size Matters - Electronic service delivery by municipalities?, in *Electronic Government - First International Conference, EGOV 2002, Aix-en-Provcence, France,* Vol. 2456, Traunmüller, R. and Lenk, K. (eds), Berlin/Heidelberg: Springer, pp. 150-156.

Lips, A. M. B. (1998) reorganizing Public Service Delivery in an Information Age, in *Public Administration in an Information Age*Snellen, I. T. M. and Donk, W. B. H. J. v. d. (eds), Amsterdam etc: IOS Press, pp. 325-339.

NIPO (1999) *EEN-loketgedachte in volle gang! De ontwikkelingen omtrent geïntegreerde dienstverlening bij overheidsinstellingen (One-Stop-Shops in full motion! The developments of integretated online public service delivery),* Amsterdam: NIPO, commissioned by the Ministry of the Interior and Kingdom Relations.

Oakley, K. (2000) *Egovernment: an international study of online government commissioned by Cables & Wireless Communications,* London: Cables & Wireless Communications.

Snijder, E. J., Flos, B. J. and Hartlieb, M. F. (2003) *Onderzoek achter de Internetsite,* Den Haag.

Stegers, E. (2002) *De één-loketgedachte weer een stap dichterbij! De ontwikkelingen omtrent geïntegreerde dienstverlening van 1999 tot 2001,* Amsterdam: NIPO, Commissioned by the Programme Bureau OL2000.

SuperPilot Eindhoven/Helmond (2003) *Plan Superpilot Eindhoven/Helmond 2003. Samen werken aan effectieve en efficiënte elektronische overheidsdienstverlening ".....Verbreden, Verdiepen, Verkennen....."* Eindhoven: City of Eindhoven/City of Helmond.

Vegt, A. v. d. and Olde Scholtenhuis, C. (2003) *Gebruikeronderzoek Digitaal loket (Useability study digital counter),* Enschede: City of Enschede.

Vos, M. and Essen, P. v. (2003) *Nota inbedding digitaal loket Enschede (memorandum embedding Ole21 in Enschede),* Enschede: City of Enschede.

[i] Advies Overheid.nl scores government sites with a questionnaire with some 50 questions on usability, general appearance, city management information, services and participation. The total score is the average of the scores on these 5 aspects.

[ii] Enschede is also the hometown of both authors, who were involved in the ESD developments in Enschede from the start.

[iii] According to the Webdam monitor, September 2003 (http://www.webdam.nl).

[iv] These departments were: Public Administration and Public Policy, Computer Science, Mathematics and finally Philosophy of Science and Technology.

[v] The 'e' in Ole stands for Enschede.

[vi] An interesting question would be if a strong e-government champion in the guise of a high level central coordinator on the central level (e.g. like the British E-envoy), would work in the Netherlands.